UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/743,587 | 12/22/2003 | Noel Wayne Anderson | 16111-US | 7986 |

78833 7590 06/24/2010

DUKE W. YEE
YEE & ASSOCIATES P.C.
P.O. BOX 802333
DALLAS, TX 75380

| EXAMINER | |
|---|---|
| FISHER, PAUL R | |
| ART UNIT | PAPER NUMBER |
| 3689 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 06/24/2010 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ptonotifs@yeeiplaw.com

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/743,587
Filing Date: December 22, 2003
Appellant(s): ANDERSON, NOEL WAYNE

Wayne P. Bailey
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed March 29, 2010 appealing from the Office action mailed October 29, 2009.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

Claims 1-29 are pending and stand rejected. These claims are currently being appealed.

**(4) Status of Amendments After Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the

subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 5,369,588 | Hayami | 11-1994 |
| 4,950,118 | Mueller | 8-1990 |
| 5,712,782 | Weigelt | 1-1998 |
| WO 00/35265 | Motz | 6-2000 |

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-7, 10-13, and 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darin Motz (WO 00/35265) hereafter Motz, in view of Hayami et al. (5,369,588) hereafter Hayami, further in view of Mueller et al. (4,950,118) hereafter Mueller**.

**As per claim 1**, Motz discloses a method for locating harvested material (Page 8, line 20 through page 9, line 14; discloses that the harvested material is being located for pick up by the second agricultural machine), the method comprising:

receiving material data including material location data on a material location of harvested material within a work area (Page 8, lines 6-19; discloses that various data is received, which includes harvest volume indicating system and a first position determining system which together comprise the data which shows the harvested material location within a work area at a given time);

obtaining background data on at least one established transportation path within the work area (Page 8, lines 6-19, page 6, lines 11-18; disclose that the site database stores a dynamic map of the agricultural field which includes transportation path within the work area, this information is obtained to help determine where the second agricultural machine should pick up the harvested material);

determining a forwarder location of a forwarder (Page 6, lines 19-30; disclose that the system tracks the position data of the second agricultural machine which is considered to be the forwarder since they are both transporting harvested material from a location to another location);

estimating economic cost factors between the forwarder location and the material location (Page 8, line 6, through page 9, line 14, page 17, line 13-23; disclose that economic factors are taken into consideration such as ensuring that the harvester is not sitting idle waiting to be unloaded costing money, thus the goal is to greatly increase the amount of crops that can be harvested in a day); and

selecting a preferential path plan between the forwarder location and the material location consistent with the background data and minimization of the economic cost factors (Page 8, line 29, through page 9, line 4; discloses that all of the gathered information is used to create a desired path between the second agricultural machine or forwarder and the material location in this case the material in the first agricultural machine and this path is based on the background data and the goal is to minimized economic cost so that the harvester does not have to sit idle and can continue to gather more material).

Motz fails to explicitly disclose estimating associated with corresponding candidate paths or segments of candidate paths.

Hayami, which talks about navigation system for motor vehicles, teaches estimating or calculating associated with corresponding candidate paths or segments of candidate paths (Col. 1, line 18 through col. 2, line 12; and col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes including their segments to ensure that the shortest or most economical route is chosen).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by Motz, with the calculating or estimating all possible routes as shown in Hayami, for the purpose of ensuring that the shortest or most economical route is chosen. By doing this the route ensures that the least amount

of obstacles and detours to get to the final destination thus using less fuel and ensuring that in the case of Motz the harvester is allowed to continue uninterrupted.

The combination of Motz and Hayami fail to explicitly disclose that the location is for unloaded material and wherein the unloaded harvested material is unloaded from a harvester that harvested the harvested material, and wherein the material location of the unloaded harvested material is a different location than the forwarder location of the forwarder.

Mueller, which talks about a system for loading and unloading trailers using automatic guided vehicles, teaches that it is old and well know to acquire the position of unloaded material, wherein the unloaded harvested material is unloaded from a harvester that harvested the harvested material, and wherein the material location of the unloaded harvested material is a different location than the forwarder location of the forwarder (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited).

Therefore, from this teaching of Mueller, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by the combination Motz and Hayami, with the location being of the unloaded material and the location being different from the harvester as taught by Mueller for the purpose of tracking the various loads or harvested materials and eliminating the need for the forwarder to follow the harvester around. By doing this the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited.

**As per claim 2**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses establishing a drop-off location for the harvested material (Page 10, line 22 through page 11, line 22; discloses that a drop-off location is established in this case a truck which will transport the harvested crop to market or other destination, this truck being parked on a road or driveway along the side of the field);

determining a path plan between the material location and the drop-off location (Page 10, line 22 through page 11, line 22; discloses that a path plan is determined from the harvester to the truck and the second agricultural machine travels along the desired path).

**As per claim 3**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses wherein the path plan comprises a shortest possible path that traverses at least one of a harvested area, an un-harvested area, and a transportation path associated with the work area (Page 8, line 29 through

page 9, line 14; discloses that the path is chosen to go through the already harvested area so the crops that have yet to be harvested are not disturbed).

**As per claim 4**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses wherein the material location and the harvested area is updated on a regular basis (Page 6, line 19 through page 7, line 2; disclose that the model is updated in real-time as the machines traverse the field, the Examiner considers real-time to be on a regular basis).

Mueller teaches receiving harvester data including harvester location data on a harvester location of a harvester within the work area, wherein the material location of the unloaded harvested material is different location than the harvester location of the harvester (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited).

**As per claim 5**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses wherein the harvested material comprises a material selected from the group consisting of grain, wood, cellulose, logs,

and crops (Page 16, lines 20-22 and page 17, lines 19-23; disclose that the harvested material includes crops which include grain, wheat, or hay).

Mueller teaches the material is distinguished from one another by an optical sensor (Col. 3, line 35 through col. 4, line 34; teaches that the system can use optical sensors to distinguish the deposited loads).

**As per claim 6**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses wherein the material location is updated after the addition of a new material location (Page 6, line 11 through page 7, line 2; discloses that the model is updated in real-time as things happen and as the machines traverse the field so as the harvester arrives at a new location the material is at a new location the material location is updated).

**As per claim 7**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz furthers discloses wherein the background data comprises transient data associated with at least one of a time-dependent location of a machine in the work area, a time-dependent location of a person within the work area, and a time-dependent definition of a harvested area associated with the work area, and wherein both the background data and the material data are specified by a user using a user interface of the data processing system (Page 8, line 20-28; discloses that data includes determining an expected location of the first agricultural machine at the expected time. Page 10, lines 1-9; disclose a user interface for displaying various conditions).

**As per claim 10**, Motz discloses a data processing system implemented method for locating harvested material (Page 8, line 20 through page 9, line 14; discloses that the harvested material is being located for pick up by the second agricultural machine), the method comprising:

collecting, by the data processing system, material data including at least one of harvester location, material location data, a material identifier, a material attribute, and a material attribute value, wherein the material location data, the material identifier, the material attribute, and the material attribute value are each associated with the harvested material (Page 8, lines 6-19; discloses that various data is received, a first position determining system which gives the location of the harvester).

obtaining, by the data processing system, background data for the work area (Page 8, lines 6-19, page 6, lines 11-18; disclose that the site database stores a dynamic map of the agricultural field which includes transportation path within the work area, this information is obtained to help determine where the second agricultural machine should pick up the harvested material);

storing, by the data processing system, the collected material data and the obtained background data (Page 6, line 19 through page 7, line 2; discloses that the information is stored either on the first and second agricultural machines or located remotely); and

making available the stored data to a forwarder (Page 6, line 19 through page 7, line 2; discloses that the information is stored on the first and second agricultural

machines where the second agricultural machine is equivalent to a forwarder since it moves material from the harvester to the truck).

receiving stored data via an electromagnetic signal (wireless signal) (Page 10, lines 10-21; disclose that the first and second agricultural machines and the central site can all communicate through a wireless communication link);

determining a forwarder location of a forwarder in the work area (Page 8, lines 6-19; disclose that the second position determining system tracks the position of the second agricultural machine in this case a forwarder);

identifying a preferential path plan between a forwarder location and a material location and between the material location and the drop-off destination based on the stored data, including material data and background data, and based on cost factor data (Page 8, line 6 through page 9, line 14; discloses that the desired path is determined from the forwarder to the material. Page 11, lines 11-15; discloses that upon getting the harvested material the second agricultural machine travels along the desired path to a truck which is the drop-off location).

Motz fails to explicitly disclose the identifying is done according to the efficient path cost.

Hayami, which talks about navigation system for motor vehicles, teaches estimating or calculating associated with corresponding candidate paths or segments of candidate paths (Col. 1, line 18 through col. 2, line 12; and col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes

including their segments to ensure that the shortest or most economical route is chosen).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by Motz, with the calculating or estimating all possible routes as shown in Hayami, for the purpose of ensuring that the shortest or most economical route is chosen. By doing this the route ensures that the least amount of obstacles and detours to get to the final destination thus using less fuel and ensuring that in the case of Motz the harvester is allowed to continue uninterrupted.

The combination of Motz and Hayami, fails to explicitly disclose wherein the material data includes at least one of material location data, a material identifier, a material attribute, and a material attribute value, wherein the material location data, the material identifier, the material attribute, and the material attribute value are each associated with the harvested material, and wherein the material location is a location of the harvested material unloaded from a harvester that harvested the harvested material.

Mueller, which talks about a system for loading and unloading trailers using automatic guided vehicles, teaches that it is old and well know to acquire the position of unloaded material wherein the material location data is each associated with the harvested material, and wherein the material location is a location of the harvested material unloaded from a harvester that harvested the harvested material (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been

deposited. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited).

Therefore, from this teaching of Mueller, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by the combination Motz and Hayami, with the location being of the unloaded material and the location being different from the harvester as taught by Mueller for the purpose of tracking the various loads or harvested materials and eliminating the need for the forwarder to follow the harvester around. By doing this the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited.

**As per claim 11**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses wherein the making available comprises transmitting the stored data from the harvester directly to the forwarder via an electromagnetic signal (wireless signal) that the harvester transmits to the forwarder (Page 10, lines 10-21; disclose that the first and second agricultural machines and the central site can all communicate through a wireless communication link, it also states

that it does not have to go through a central site that the database can be located on the machines themselves thus the machines would talk directly to each other).

Mueller further teaches that the collected material data is stored in response to unloading the harvested material from the harvester (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited, from this it is shown that the system detects when a load is deposited and stores it in the system for pick up).

**As per claim 12**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses obtaining background data comprises obtaining obstruction data, hazard data, ground cover data, topographical data, route data, path data, and vegetation data for at least part of the work area (Page 6, lines 11-18; disclose that the database stores a dynamic map or model of the agricultural field, which includes geographic information representing the topography of the field, such as agricultural field already harvested, obstacles within the field such as rocks or trees, boundaries of the field and the like. Page 9, lines 3-7; discloses that it tracks paths or routes).

While Motz discloses various kinds of data being stored it fails to explicitly disclose specific data such as established transportation route data established transportation path data.

Hayami, which talks about navigation system for motor vehicles, teaches storing information for all possible paths and routes (Col. 1, line 18 through col. 2, line 12; and

col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes including their segments to ensure that the shortest or most economical route is chosen).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by Motz, with the calculating or estimating all possible routes as shown in Hayami, for the purpose of ensuring that the shortest or most economical route is chosen. By doing this the route ensures that the least amount of obstacles and detours to get to the final destination thus using less fuel and ensuring that in the case of Motz the harvester is allowed to continue uninterrupted.

**As per claim 13**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses obtaining background data comprises (i) obtaining static data and transient data as the background data, wherein the static data remains generally constant over a greater sample period and wherein the transient data tends to vary over the greater sample period, and (ii) providing a user interface that allows a user to override the background data that is obtained (Page 6, line 11 through page 7, line 2; discloses that the information is gathered about the field which is topography information which is static data since it remains generally constant over a greater sample period, it also shows that it tracks the vehicles which is considered to be transient data since it tends to vary over the greater sample period. Page 9, lines 15-30; discloses that while the system is automatic it allows for manual override by the operator).

**As per claim 16**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses obtaining background data via forwarder electronics for supplementing, augmenting or replacing the stored background data (Page 6, line 19 through page 7, line 2; discloses that the second position determining system located on the second agricultural machine or the forwarder updates its position to the site database which stores the background data, this information is updated in real-time as the machines traverse the field).

**As per claim 17**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses presenting the preferential path plan to the operator via a user interface (Page 10, lines 1-9; discloses that an operator of either the first or second agricultural machines are presented with a display that will display the desired path).

**As per claim 18**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, Motz further discloses wherein the cost factor data comprises one or more of the following times: estimating travel time between a starting point and a destination point of a candidate path plan or segment, empirical travel time between a starting point and a destination point of candidate path plan or segment, a travel distance between a starting point and a destination point of a candidate path plan or segment, and a travel distance between a material location and one or more corresponding drop-off locations (Page 8, line 20 through page 9, line 14; discloses that the invention tracks the estimated travel time between a starting point and a destination point of a candidate path plan or segment, in this case the invention tracks the

estimated time the first agricultural machine will be at a location and then directs the second agricultural machine to that location on a desired path at a desired speed so it can reach that location on time).

3. **Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darin Motz (WO 00/35265) hereafter Motz, in view of Hayami et al. (5,369,588) hereafter Hayami as applied to claim 1 above, further in view of Mueller et al. (4,950,118) hereafter Mueller, further in view of Weigelt et al. (5,712,782) hereafter Weigelt**.

**As per claim 8**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, but fails to explicitly disclose wherein selecting a preferential path plan further comprises considering environmental factors to reduce soil compaction from the forwarder.

Weigelt, which talks about a method of optimizing utilization of a group of agricultural machine, teaches considering environmental factors to reduce soil compaction from the machine (Col. 7, lines 40-55; teach that moisture data and ground and grain moisture is used to determine the ability to travel over the field).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of locating harvested material provided by the combination of Motz and Hayami, with the considering environmental factors as taught by Weigelt, to ensure that the vehicle and travel over the field and not get stuck in the ground due to mud or some other environmental condition.

**As per claim 9**, the combination of Motz, Hayami and Mueller teaches the above-enclosed invention, but fails to explicitly disclose wherein selecting a preferential path plan further comprises considering vehicle dynamic constraints related to the handling and maneuvering capabilities of the forwarder that is transporting a certain corresponding level of a load of the harvested material.

Weigelt, which talks about a method of optimizing utilization of a group of agricultural machine, teaches considering vehicle dynamic constraints related to the handling and maneuvering capabilities of the forwarder that is transporting a certain corresponding level of a load of the harvested material (Col. 7, lines 40-55; teach that moisture data and ground and grain moisture is used to determine the ability to travel over the field, this information can be used to determine if a vehicle would be able to cross the field given it current weight and the conditions of the ground which is considered to be vehicle dynamic constraints related to handling and maneuvering). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of locating harvested material provided by the combination of Motz and Hayami, with the considering vehicle constraints as taught by Weigelt, to ensure that the vehicle and travel over the field and not get stuck in the ground due to mud or some other environmental condition.

4. **Claims 14-15, 23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darin Motz (WO 00/35265) hereafter Motz, in view of Mueller et al. (4,950,118) hereafter Mueller**.

**As per claim 14**, Motz discloses a data processing system implemented method for facilitating locating harvested material (Page 8, line 20 through page 9, line 14; discloses that the harvested material is being located for pick up by the second agricultural machine), the method comprising:

collecting, by the data processing system, material data including at least two of material location data, a material identifier, a material attribute, and a material attribute value, wherein the material location data, the material identifier, the material attribute, and the material attribute value are each associated with the harvested material (Page 8, lines 6-19; discloses that various data is received, a first position determining system which gives the location of the harvester, from this it shown that both the material location and material value or amount are known by the system and collected by the various sensors).

marking the harvested material with a marker for referencing the collected material data (Page 6, line 11 through page 7, line 10; discloses that the system tracks both the already harvested areas of the field and the level of harvested material already on the harvester which is marking the harvested material).

Motz, fails to explicitly disclose wherein the harvested material is material that has been unloaded from a harvester that harvested the material; and wherein the marker is at least one of a bar code, a uniform product code (UPC), an optical code, a radio frequency identification tag, an optical tag, and a tag, and the marker is usable to locate the harvested material that has been unloaded from the harvester.

Mueller, which talks about a system for loading and unloading trailers using automatic guided vehicles, teaches that it is old and well know to acquire the position of unloaded material wherein the material location data is each associated with the harvested material, and wherein the marker is an optical tag (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited. These sensors can be optical and used as targets. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited).

Therefore, from this teaching of Mueller, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by Motz, with the location being of the unloaded material and the location being different from the harvester as taught by Mueller for the purpose of tracking the various loads or harvested materials and eliminating the need for the forwarder to follow the harvester around. By doing this the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited.

**As per claim 15**, the combination of Motz and Mueller teaches the above-enclosed invention, Mueller teaches reading the marker associated with the harvested

material by a forwarder that includes forwarder electronics (Col. 3, line 35 through col. 4, line 34; teaches that with optical sensors a AGV can read that there is a load which has been deposited and go to pick it up for delivery).

**As per claim 23**, Motz discloses a system for locating harvested material in a work area (Page 8, line 20 through page 9, line 14; discloses that the harvested material is being located for pick up by the second agricultural machine), the system comprising:

a harvested material attribute sensor for collecting material data including at least two of harvester location data, material location data, a material identifier, a material attribute, and a material attribute value, wherein the material location data, the material identifier, the material attribute, and the material attribute value are each associated with the harvested material (Page 5, line 21 through page 6, line 10; discloses a sensor to collecting data on harvester location data. Page 8, lines 6-19; discloses that various data is received, a first position determining system which gives the location of the harvester, from this it shown that both the material location and material value or amount are known by the system and collected by the various sensors);

a navigational/environmental sensor for obtaining background data for the work area (Page 6, lines 5-10; discloses a GPS receiver. Page 6, lines 11-18; discloses that topography information is collected in regards to the field);

a storage device for storing the collected material data and the obtained background data (Page 6, line 11 through page 7, line 2; discloses that the information is stored in either the first or second agricultural machines or both as well as it can be stored in a central location); and

a wireless communications device for making available the stored data to a forwarder (Page 10, line 10-21; discloses that harvester or first agricultural machine, the forwarder or second agricultural machine and the central location all communicate through a wireless communication link).

Motz, fails to explicitly disclose wherein the harvested material is material that has been unloaded from a harvester that harvested the material.

Mueller, which talks about a system for loading and unloading trailers using automatic guided vehicles, teaches that it is old and well know to acquire the position of unloaded material wherein the material location data is each associated with the harvested material, (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited. These sensors can be optical and used as targets. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited).

Therefore, from this teaching of Mueller, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by Motz, with the location being of the unloaded

material and the location being different from the harvester as taught by Mueller for the purpose of tracking the various loads or harvested materials and eliminating the need for the forwarder to follow the harvester around. By doing this the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited.

**As per claim 29**, the combination of Motz and Mueller teaches the above-enclosed invention, Motz further discloses a central processor determining the preferential path plan from the collected material data and background data collected by one or more harvesters and sending the determined preferential path plan to a plurality of forwarders operating in the work area (Page 8, line 6 through page 9, line 14; disclose that the information is collected and then analyzed by the control system which then sends the desired path to the second agricultural machine. Page 5, lines 6-20; disclose that while the described using only two machines it could be carried out with any number of machines).

5. **Claims 19-22 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Darin Motz (WO 00/35265) hereafter Motz, in view of Mueller et al. (4,950,118) hereafter Mueller, further in view of Hayami et al. (5,369,588) hereafter Hayami**.

**As per claim 19**, the combination of Motz and Mueller teaches the above-enclosed invention, Motz further discloses reading the marker for referencing the stored data (Page 8, lines 6-19; disclose that the stored information is read including various markers, such as position data of each of the agricultural machines and the site data which includes the field information)

determining, in response to the reading of the marker, a forwarder location of a forwarder in the work area (Page 8, lines 6-19; disclose that the second position determining system tracks the position of the second agricultural machine in this case a forwarder);

identifying a preferential path plan between the forwarder location and a material location and between the material location of the harvested material that has been unloaded from the harvester and the drop-off destination based on the stored data, including material data and background data, and based on cost factor data (Page 8, line 6 through page 9, line 14; discloses that the desired path is determined from the forwarder to the material. Page 11, lines 11-15; discloses that upon getting the harvested material the second agricultural machine travels along the desired path to a truck which is the drop-off location).

The combination of Motz and Mueller fails to explicitly disclose the identifying is done according to the efficient path cost.

Hayami, which talks about navigation system for motor vehicles, teaches estimating or calculating associated with corresponding candidate paths or segments of candidate paths (Col. 1, line 18 through col. 2, line 12; and col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes including their segments to ensure that the shortest or most economical route is chosen).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of

locating harvested material provided by the combination of Motz and Mueller, with the calculating or estimating all possible routes as shown in Hayami, for the purpose of ensuring that the shortest or most economical route is chosen. By doing this the route ensures that the least amount of obstacles and detours to get to the final destination thus using less fuel and ensuring that in the case of Motz the harvester is allowed to continue uninterrupted.

**As per claim 20**, the combination of Motz, Mueller and Hayami teaches the above-enclosed invention, Motz further discloses obtaining background data via forwarder electronics for supplementing, augmenting or replacing the stored background data (Page 6, line 19 through page 7, line 2; discloses that the second position determining system located on the second agricultural machine or the forwarder updates its position to the site database which stores the background data, this information is updated in real-time as the machines traverse the field).

**As per claim 21**, the combination of Motz, Mueller and Hayami teaches the above-enclosed invention, Motz further discloses presenting the preferential path plan to the operator via a user interface (Page 10, lines 1-9; discloses that an operator of either the first or second agricultural machines are presented with a display that will display the desired path).

**As per claim 22**, the combination of Motz, Mueller and Hayami teaches the above-enclosed invention, Motz further discloses wherein the cost factor data comprises one or more of the following times: estimating travel time between a starting point and a destination point of a candidate path plan or segment, empirical travel time

between a starting point and a destination point of candidate path plan or segment, a travel distance between a starting point and a destination point of a candidate path plan or segment, and a travel distance between the material location and one or more corresponding drop-off locations (Page 8, line 20 through page 9, line 14; discloses that the invention tracks the estimated travel time between a starting point and a destination point of a candidate path plan or segment, in this case the invention tracks the estimated time the first agricultural machine will be at a location and then directs the second agricultural machine to that location on a desired path at a desired speed so it can reach that location on time).

**As per claim 24**, the combination of Motz and Mueller teaches the above-enclosed invention, Motz further discloses another wireless communications device for receiving stored data via an electromagnetic signal (Page 10, line 10-21; discloses that harvester or first agricultural machine, the forwarder or second agricultural machine and the central location all communicate through a wireless communication link).

a location-determining receiver for determining a forwarder location of a forwarder in the work area (Page 5, line 21 through page 6, line 10; discloses that the second agricultural machine is tracked by a second position determining system);

a data processor for identifying a preferential path between the forwarder location and the material location and between the material location of the harvested material unloaded from the harvester and the drop-off destination based on the stored data, including the material data and the background data, and based on a cost factor data (Page 8, line 6 through page 9, line 14; discloses that the desired path is determined

from the forwarder to the material. Page 11, lines 11-15; discloses that upon getting the harvested material the second agricultural machine travels along the desired path to a truck which is the drop-off location).

Mueller teaches that it is old and well know to acquire the position of unloaded material (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited. These sensors can be optical and used as targets. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited).

The combination of Motz and Mueller fails to explicitly disclose the identifying is done according to the efficient path cost.

Hayami, which talks about navigation system for motor vehicles, teaches estimating or calculating associated with corresponding candidate paths or segments of candidate paths (Col. 1, line 18 through col. 2, line 12; and col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes including their segments to ensure that the shortest or most economical route is chosen).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by the combination of Motz and Mueller, with the calculating or estimating all possible routes as shown in Hayami, for the purpose of ensuring that the shortest or most economical route is chosen. By doing this the route ensures that the least amount of obstacles and detours to get to the final destination thus using less fuel and ensuring that in the case of Motz the harvester is allowed to continue uninterrupted.

**As per claim 25**, the combination of Motz and Mueller teaches the above-enclosed invention, Motz further discloses a reading device reading a marker for referencing stored data (Page 8, lines 6-19; discloses that the control system reads in the various data or markers);

another location-determining receiver for determining a forwarder location of a forwarder in the work area (Page 5, line 21 through page 6, line 10; discloses that the second agricultural machine is tracked by a second position determining system);

a data processor for identifying a preferential path between the forwarder location and the material location and between the material location of the harvested material unloaded from the harvester and the drop-off destination based on the stored data, including material data and background data, and based on a cost factor data (Page 8, line 6 through page 9, line 14; discloses that the desired path is determined from the forwarder to the material. Page 11, lines 11-15; discloses that upon getting the

harvested material the second agricultural machine travels along the desired path to a truck which is the drop-off location).

Mueller teaches that it is old and well know to acquire the position of unloaded material (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited. These sensors can be optical and used as targets. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited).

The combination of Motz and Mueller fails to explicitly disclose the identifying is done according to the efficient path cost.

Hayami, which talks about navigation system for motor vehicles, teaches estimating or calculating associated with corresponding candidate paths or segments of candidate paths (Col. 1, line 18 through col. 2, line 12; and col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes including their segments to ensure that the shortest or most economical route is chosen).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by Motz, with the calculating or estimating all possible routes as shown in Hayami, for the purpose of ensuring that the shortest or most economical route is chosen. By doing this the route ensures that the least amount of obstacles and detours to get to the final destination thus using less fuel and ensuring that in the case of Motz the harvester is allowed to continue uninterrupted.

**As per claim 26**, the combination of Motz and Mueller teaches the above-enclosed invention, Motz further discloses an estimator for estimating economic cost factors between the forwarder location and the material location (Page 8, line 6, through page 9, line 14, page 17, line 13-23; disclose that economic factors are taken into consideration such as ensuring that the harvester is not sitting idle waiting to be unloaded costing money, thus the goal is to greatly increase the amount of crops that can be harvested in a day); and

a selector for selecting a preferential path plan between the forwarder location and the material location consistent with the background data and minimization of the economic cost factors (Page 8, line 29, through page 9, line 4; discloses that all of the gathered information is used to create a desired path between the second agricultural machine or forwarder and the material location in this case the material in the first agricultural machine and this path is based on the background data and the goal is to minimized economic cost so that the harvester does not have to sit idle and can continue to gather more material).

The combination of Motz and Mueller fails to explicitly disclose estimating associated with corresponding candidate paths or segments of candidate paths.

Hayami, which talks about navigation system for motor vehicles, teaches estimating or calculating associated with corresponding candidate paths or segments of candidate paths (Col. 1, line 18 through col. 2, line 12; and col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes including their segments to ensure that the shortest or most economical route is chosen).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by the combination of Motz and Mueller, with the calculating or estimating all possible routes as shown in Hayami, for the purpose of ensuring that the shortest or most economical route is chosen. By doing this the route ensures that the least amount of obstacles and detours to get to the final destination thus using less fuel and ensuring that in the case of Motz the harvester is allowed to continue uninterrupted.

**As per claim 27**, the combination of Motz, Mueller and Hayami teaches the above-enclosed invention, Motz further discloses the data processor further comprises a guidance module for presenting guidance information on the selected preferential path plan to a user via a user interface (Page 10, lines 1-9; disclose an operator display for displaying the path to a user).

**As per claim 28**, the combination of Motz and Mueller teaches the above enclosed invention, Motz further discloses a user interface (Page 10, lines 1-9; discloses where the system has a user interface).

The combination of Motz and Mueller fails to disclose where the user interface is used to enter data.

Hayami, which talks about navigation system for motor vehicles, teaches a user interface for entering the material data to supplement or complement an output of the harvested material attribute sensor (Col. 2, lines 62-68; teaches that the system has a manipulating unit where the user can enter data).

Therefore, from this teaching of Hayami, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify method of locating harvested material provided by the combination of Motz and Mueller, with the entering of data by the user as shown in Hayami, for the purpose of allowing the user to change or modify information in the system.

**(10) Response to Argument**

6. In response to the appellant's argument regarding claim 1, that "While this overall goal may exist, it is accomplished by 'timing' the forwarder to meet the harvester when the harvester's load is full - and not by path selection," the Examiner respectfully disagrees. While timing does exist in the reference the timing could not be achieved with out a path selection. In this case without selecting a path the system of Motz would not work, meaning that without determining which path to set the machine one the process would never complete. Thus while time is a factor it is not the only factor and

there are different paths that the machine could travel and one is selected to minimize the time the machine sits idle, which is an economic factor. From this the Examiner asserts that the references read over the claims as currently written, therefore the rejection is maintained.

7. In response to the appellant's argument that, "Motz does not teach a path selection that pertains to unloaded harvested material, and therefore does not describe any selection of a path plan for minimization of economic cost factors," the Examiner respectfully disagrees. As stated in the rejection the goal of Motz is to minimize economic cost so that the harvester does not have to sit idle and can continue to gather more material. Clearly an economic cost factor is minimized in Motz. In regards to the unloaded harvested material, the material has been unloaded as shown on page 11, where the material is transferred to a grain cart or unloaded from the harvester. Further the appellant is arguing the references separately, since Motz alone was not used to disclose this feature. Mueller as discussed above teaches it is old and well known to unload cargo in areas for pickup later. When combined as done above the references teach the limitations of the claims as currently written. The rejections are therefore maintained.

8. In response to the appellant's argument that, "'timing' is used to accomplish economic cost factor," the Examiner respectfully disagrees that this is the only factors being used. While timing is a factor, timing alone is not capable of directing a machine alone a path. Only the corresponding selected path, will achieve the goal, while this path may be chosen in part by the time it takes to reach the goal, it is not possible to

use the time alone to get the machine to the desired point. Other factors must be used for example determining the over all area for travel, the desired location in which the machine needs to be at that time, and the known location of the un-harvested crops. As stated in Motz, page 9, lines 8-14, which state the path is selected also based on where the harvester has already been as to prevent damage to a crop that has yet to be harvested which is in itself an economical reason for choosing the selected path. If it purely based on time alone the system would not consider if the material has been harvested or not since time would be the only factor. Clearly that is not the case, thus the references read over the claims as currently written and the rejection has been maintained.

9. In response to the appellant's argument, regarding the Mueller reference, specifically "a person of ordinary skill in the art would not have been motivated to use this ON/OFF switch signal detection in a path selection determination...," the Examiner respectfully disagrees. The appellant appears to be mischaracterizing the reference the passage cited in Mueller does not describe merely a ON/OFF as suggested rather this passage states that sensors are present and these sensors can be optical or mechanical or even weight sensitive. These sensors are used to determine when a load is at an appropriate level to be picked up similar to the level sensors in Motz. By doing this the path can be scheduled for the most optimal time to pick up material and transfer it to a new location as is done in Motz. It would have been clear to one of ordinary skill in the art that when combined Motz and Mueller teach the concept of unloading material to be picked up at a later time, and the time is determined based on the sensors which

determine the level of the product and that location. As stated above these are not merely sensors on a conveyor belt lacking location information as suggested by the appellant rather these sensors show that material has been deposited at the location and if material needs to be picked up at a location. Thus, the Examiner asserts that the references as combined read over the claimed invention and the rejections have been maintained.

10. In response to the appellant's argument that, "Motz requires that the material be in the first machine when performing the alleged path determination...", the Examiner respectfully disagrees. As discussed above the material has been unloaded as shown on page 11, where the material is transferred to a grain cart or unloaded from the harvester, and the rejection is not simply Motz alone as discussed above. For these reason the Examiner asserts that the references when combined teach the limitations of the claims as currently written. Therefore the rejections have been maintained.

11. In response to the appellant's argument that, "there would be no reason to use this Mueller sensor data in selecting a path since the sensor is fixed...," the Examiner respectfully disagrees. As shown above the sensor data would shown when an area has reached a determined level and requires pickup, when there are multiple points it would have been obvious that these points would form a path and thus would require a path plan to pick up the material in the fastest possible format which is the purpose of Motz. Further the combination is not Mueller in view of Motz, rather Motz has been modified to show that material can be unloaded from a vehicle and still a path can be formed to determine time and place for pick up and to formulate a path plan, thus the

references when combined teach the limitations of the claims as currently written, and the rejections have been maintained.

12. In response to the appellant's argument that, "Motz' keen desire to time the 'time of pickup' with 'when' a 'full' condition is attained, such multi-location drop-off would defeat the very critical timing objectives that Motz is keen on providing," the Examiner respectfully disagrees. Motz clearly shows that the invention is not drawn to a single vehicle, page 15, line 2 through page 16, line 17 of Motz describes and example where there are multiple harvesters collecting material and both loading the material into hoppers thus there are at least 2 points of collection. From this is clear that the invention is not limited to a single point of pick up as suggested by the appellant. Rather the invention in clearly adaptive and scalable, the system can clearly be used with multiple machines and thus when combined will show multiple points of pickup. Therefore when combined the references teach the claims as currently written and the rejections have been maintained.

13. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). Further as shown above Motz is not limited to time alone and when combined

would teach means of path planning which include drop points for future pick up, this does not teach away from Motz since the goal of Motz is to continual harvesting, if the material is removed for later pick up it would not prohibit the harvester to continually harvest it would merely allow for points for material to be picked up as shown in Motz, page 17, lines 1-12 which show that the crop is transferred during the process. Therefore, as discussed above when combined the references read over the claims as currently written and the rejections have been maintained.

14. In response to the appellant's argument that, "the path from the harvester to the truck does not teach or suggest a path plan between the material location of the unloaded harvested material and the drop-off location is determined, as claimed, since in this instance the material is still loaded in the harvester," the Examiner respectfully disagrees. The cited passage shows the material is unloaded into a cart and then further transferred to the truck. The material does not remain in the harvester as suggested by the appellant. Therefore the references read over the claims as currently written.

15. In response to the appellants argument that Motz fails to disclose the Shortest possible path the Examiner respectfully disagrees. Since the path plan discloses a desired path in the desired time it is obvious that the machine takes the shortest path to reach the target on time since the claim requires it go through one of a harvested, un-harvested and transportation are the Examiner is showing travel through an un-harvested area and reason for doing so. Further claim 3 depends from claim 1 which is rejected under the combination of the combination of Motz, Hayami and Mueller as can

be seen in Hayami and as stated in claim 1 the shortest possible path is found, and when combined would be the desired path as stated in Motz since it would be the shortest amount of time thus the least amount of time the machines run idle saving the most money. Thus when read in combination the references read over the claims as currently written, therefore rejections are therefore maintained.

16. In response to the appellants argument that Motz does not teach or suggest any 'material location' for unloaded harvested material... Thus Motz cannot teach any regular basis updating of a material location of unloaded harvested material," the Examiner respectfully disagrees. As shown above Motz discloses that the material is unloaded into a hopper, then to a cart and finally to a truck while tracking its location the whole time, further regarding that real time is not the same as regular, the appellant is relying on newly introduced definitions but even those definitions prove that real time is regular interval. As shown by the appellants definition real time is a "steady flow of new information" thus this steady flow is a regular interval since it is steady or constant. Therefore the Examiner asserts that the references read over the claims as currently written and the rejections have been maintained.

17. In response to the appellant's argument regarding claim 6 that Motz fails to show unloaded material, the Examiner respectfully disagrees. As discussed in detail above, Motz is unloaded into a hopper, then to a cart and finally to a truck while tracking its location the whole time, thus the material is unloaded and thus is unloaded material. Therefore the Examiner asserts that the references read over the claims as currently written and the rejections have been maintained.

18. In response to the appellant's argument regarding claim 7, that Motz fails to show specifying data, the Examiner respectfully disagrees. As cited in the rejection Motz shows the user can manually operate the display thus specify information they wish to see. Thus the references read over the claims as currently written and the rejections have been maintained.

19. In response to the appellant's argument regarding claim 10, specifically the unloaded material, the Examiner respectfully disagrees. As discussed above in regards to claim 1, the references when combined teach these features. For these reasons the rejections have been maintained.

20. In response to the appellant's argument that, "This path is not described as being any type of path between (i) a forward location and (ii) a location of unloaded harvested material," the Examiner respectfully disagrees. As shown above Motz discloses that the path is determined to get to the material located in the hopper, which is filled from the harvester. The path is then determined for the cart now containing the material to the truck. For these reasons the rejections have been maintained.

Further the appellant's arguments regarding claims 10, 12 and 16-18 appear to be arguing the references separately. Motz alone was not used to reject these claims, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As shown in the above rejection Hayami teaches estimating or calculating associated with corresponding candidate paths or segments of candidate paths (Col. 1,

line 18 through col. 2, line 12; and col. 2, line 62 through col. 3, line 19; teaches that it is old and well know to do the calculations for all possible routes including their segments to ensure that the shortest or most economical route is chosen). Mueller teaches that it is old and well know to acquire the position of unloaded material wherein the material location data is each associated with the harvested material, and wherein the material location is a location of the harvested material unloaded from a harvester that harvested the harvested material (Col. 3, line 35 through col. 4, line 34; teaches that through the use of Load sensing sensors a the location of a load is detected which is to be picked up, this load is one which has been deposited. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. While the invention is directed toward a loading dock, it also says it could be equally applicable in other configurations, it would have been obvious to use this method instead of unloading from the carts as shown in Motz since the harvester would not have to stop and the forwarder would only have to pick up the loads as deposited). When combined the references teach the recited features of the claims as currently written. The appellant has failed to show how these references as combined fail to show the features, rather has merely argued that Motz alone fails to show these features, which is not proper. As shown in the above rejection and previously discussed Motz shows a path plan regarding material that has been unloaded to a hopper, then a cart and finally a truck, this path is chosen using economic factors including avoiding un-harvested material. When combined with Hayami the references show calculating paths to

determine the shortest fastest or most desirable root as discussed in Motz. When combined with Mueller it would have been obvious that paths are determined for material that is unloaded and deposited in various locations for pick up. Therefore, the Examiner asserts that when combined the references read over the claims as currently written, and the rejections have therefore been maintained.

21. In response to the appellant's argument that, "Mueller does not teach or suggest either (i) harvested material, or (ii) a harvester – and therefore Mueller cannot teach that the collected material data is stored in response to unloading the harvested material from the harvester," the Examiner respectfully disagrees. The appellant again is arguing the references separately, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Mueller was not used to disclose these features Motz was, the Examiner asserts that when read in combination the references teach the limitations of the claims as currently written.

22. In response to the appellant's argument that, "a generalized description that a user can manually 'operate' a machine does not teach or suggest specific features pertaining to providing a user interface that allows a user to override the background data that is obtained, as claimed," the Examiner respectfully disagrees. The claims do not positively recite a step of overriding data rather they merely require an interface that does not prohibit this form happening, since the device allows for manual operation the interface clearly allows, or does not prohibit the user from entering data. Thus due to the

broad nature of the claims, the Examiner asserts that the references read over the claims as currently written.

23. In response to the appellant's argument regarding claims 8 and 9, specifically "the resulting combination does not teach or suggest the synergistic interplay that is provided by the claimed terminology of 'considering' that links these two claimed aspects together in a synergistic fashion," the Examiner respectfully disagrees. The appellant has given no reasons as to why the combination fails to meet the claimed limitations. The references Weigelt clearly shows that the system gathers information that can be used to help determine "spraying or fertilizer applications and the ground and grain moisture influence the threshability, the ability to travel over the field or the action of the plant protecting agents," from this it would work with Motz to update the system on which paths are able to be travel thus considering environmental factors when determining a path to travel. The Examiner asserts that when combined the references teach the limitations of the claims as currently written, thus the rejections have been maintained.

24. In response to the appellant's argument that, Motz fails to show "a 'marking' action associated with harvested material that is marked with a marker," the Examiner respectfully disagrees. In this combination Motz discloses where the map is marked showing what area has been harvested and which area has not be harvested, which is marking associated with harvested material. Mueller is further used to teach unloading material and optical tag and that through the use of Load sensing sensors at the location of a load is detected which is to be picked up, this load is one which has been

deposited. These sensors can be optical and used as targets. From this it is shown that a load is deposited by a vehicle, which in this case would be the harvester, the location of the load is different from that harvester now that the load has been deposited. When combined the references read over the claims as currently written, and the rejections have been maintained.

25. In response to the appellant's new evidence of regarding marking, the Examiner respectfully disagrees. The argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "'mark' is tangible") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). In the claims that stand on appeal the marker is not required to be tangible rather it is only required to be "usable to locate the harvested material that has been unloaded from the harvester", since the Mueller references shows optical sensors used to determine when material has be unloaded the Examiner asserts that the references when combined read over the claims as currently written, and the rejection in therefore maintained.

26. In response to the appellant's argument that, "none of the cited references teach or suggest that the 'reading' of the marker – which is a direct result of the 'marking' step is performed by a forwarder," the Examiner respectfully disagrees. As shown in the rejection the optical sensors mark the unloaded material, when the material reaches a level that requires a pick up the AVG or Automatic guided vehicle is directed for pickup, thus reading the maker to know to pick up the material. When read in combination with

Motz it teaches forwarders reading the signal that pick up is required in a specific location. Therefore the Examiner asserts that when read in combination the references read over the claims as currently written and the rejections have been maintained.

27. In response to the appellant's argument in regards to claim 23, that "these sensors merely provide and ON/OFF indicator which indicates 'when' an object breaks a light-beam the appellant appears to be mischaracterizing the reference the passage cited in Mueller does not describe merely a ON/OFF as suggested rather this passage states that sensors are present and these sensors can be optical or mechanical or even weight sensitive. These sensors are used to determine when a load is at an appropriate level to be picked up similar to the level sensors in Motz. By doing this the path can be scheduled for the most optimal time to pick up material and transfer it to a new location as is done in Motz. It would have been clear to one of ordinary skill in the art that when combined Motz and Mueller teach the concept of unloading material to be picked up at a later time, and the time is determined based on the sensors which determine the level of the product and that location. As stated above these are not merely sensors on a conveyor belt lacking location information as suggested by the appellant rather these sensors show that material has been deposited at the location and if material needs to be picked up at a location. Thus, the Examiner asserts that the references as combined read over the claimed invention and the rejections have been maintained.

28. In response to the appellant's argument that, "'substituting' one type of machine for another type of machine does not teach or suggest an active step of 'sending' the determined preferential path plan to a 'plurality of forwarder' operating in the work area,"

the Examiner respectfully disagrees. The recited passage was not to merely point out that substitutes can be made but rather that any number of vehicles can be included in the operations. Further page 15, lines 12-18; disclose there are a plurality of machines running in the system and it would have been obvious to one having ordinary skill in the art that the system is scalable and thus can provide a plurality of machines the path plan as needed. Therefore, the references teach the limitations of the claims as currently claimed and the rejections have been maintained.

29. In response to the appellant's argument regarding claim 19, specifically that the references fail to show "in response to the reading of the marker, a forwarder location of a forwarder in the work area is determined," the Examiner respectfully disagrees. As discussed above the appellant appears to be mischaracterizing the reference the passage cited in Mueller does not describe merely a ON/OFF as suggested rather this passage states that sensors are present and these sensors can be optical or mechanical or even weight sensitive. These sensors are used to determine when a load is at an appropriate level to be picked up similar to the level sensors in Motz. By doing this the path can be scheduled for the most optimal time to pick up material and transfer it to a new location as is done in Motz. It would have been clear to one of ordinary skill in the art that when combined Motz and Mueller teach the concept of unloading material to be picked up at a later time, and the time is determined based on the sensors which determine the level of the product and that location. As stated above these are not merely sensors on a conveyor belt lacking location information as suggested by the appellant rather these sensors show that material has been deposited at the location

and if material needs to be picked up at a location. Further Motz discloses that the positions of the vehicles are monitored and thus when combined Motz, Mueller and Hayami teach reading a marker which shows that material needs to be picked up sending a forward to the location based on the material pick up and the forwards location where Hayami teaches evaluating different paths. From this combination the references teach the claimed limitations and the rejections have been maintained.

30. In response to the appellant's argument that, there is not "teaching of suggestion that the forwarder/material path and the material/truck path are identified by the same data processor," the appellant goes on to state, there is no "teaching or suggestion as to 'how' the desired path for the material/truck drop-off location is ascertained," and there is no "teaching/suggestion that a desired path is determined between a forwarder location and an unloaded material location," the Examiner respectfully disagrees. First the Examiner asserts that claim 24, is a system claim and therefore the appellant is arguing the intended use of the structural component. In response to applicant's argument that "forwarder/material path and the material/truck path are identified by the same data processor", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The processor which has been show is capable of performing this intended use thus it meets the claim. Further Motz was not used alone for this rejection, when read in combination the references do show how a path is determined while it is not needed since again this

is intended use. Further as stated above the references show how a path is determined between the forwarder and the material location. The appellant is again arguing the references separately. The Examiner asserts that when read in combination the references teach the claimed limitations therefore the rejections have been maintained.

31. In response to the appellant's argument regarding claim 25, that Motz fails to disclose "a reading device reading a marker for referencing the stored data, wherein the marker is associated with the harvested material that is unloaded from the harvester," the Examiner respectfully disagrees. First the Examiner asserts that claim 25, is a system claim and therefore the appellant is arguing the intended use of the structural component. In response to applicant's argument that "a reading device reading a marker for referencing the stored data, wherein the marker is associated with the harvested material that is unloaded from the harvester", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The reading device in Motz is capable of reading various types of data thus would be capable of reading data which is associated with unloaded material. Further Motz was not used alone for this rejection, when read in combination the references do show how a path is determined while it is not needed since again this is intended use. Further as stated above the references show how a path is determined between the forwarder and the material location. The appellant is again arguing the

references separately. The Examiner asserts that when read in combination the references teach the claimed limitations therefore the rejections have been maintained.

32. In response to the appellant's argument regarding claims 26 and 27, specifically that Motz fails to show "an estimator for estimating economic cost factors associated with corresponding candidate paths or segments of candidate paths between the forwarder location and the material location," the Examiner respectfully disagrees. First the Examiner asserts that claims 26 and 27, are system claims and therefore the appellant is arguing the intended use of the structural component. In response to applicant's argument that "an estimator for estimating economic cost factors associated with corresponding candidate paths or segments of candidate paths between the forwarder location and the material location", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. The reading device in Motz is capable of reading various types of data thus would be capable of reading data which is associated with unloaded material. Further Motz was not used alone for this rejection, when read in combination the references do show how a path is determined while it is not needed since again this is intended use. Further as stated above the references show how a path is determined between the forwarder and the material location. The appellant is again arguing the references separately. The Examiner asserts that when read in combination the references teach the claimed limitations therefore the rejections have been maintained.

33. All rejections made towards the dependent claims are maintained due to the lack of a reply by the appellant in regards to distinctly and specifically pointing out the supposed errors in the Examiner's action in the prior Office Action (37 CFR 1.111). The Examiner asserts that the applicant only argues that the dependent claims should be allowable because the independent claims are unobvious and unpatentable over Motz, in view of Hayami, further in view of Mueller and where applicable Weigelt.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Paul R. Fisher

/PAUL R FISHER/

Examiner, Art Unit 3689

Conferees:

Janice Mooneyham

/Janice A. Mooneyham/

Supervisory Patent Examiner, Art Unit 3689

Vincent Millin /vm/

Appeals Conference Specialist